REMARKS

Applicants have amended the claims in order to expedite prosecution in this matter and to claim preferred embodiments. These amendments are supported throughout the specification.

For example, the amendment to claim 111 is supported at, for example, page 20 and page 26. The amendment to claim 123 is supported at page 26, lines 23 through 28. Specifically, the specification teaches that "[t]he sub-population may be subcloned into expression vectors, if necessary, which contain receptor constant region genes in-frame ... ." (page 26, lines 23-25) and the specification further teaches, at this point, that the present libraries can be created "by cloning the selected variable region genes into expression vectors containing constant region genes of other proteins such as antibody constant region genes or T cell receptor genes," (page 26, lines 25-27). The latter provides support for claim 119.

New claims 124 and 125 are similar to claims 121 and 123 but are directed to the embodiment where the library of vectors encodes antibodies. Claims 125 are specifically supported in the specification at page 24, lines 5 through 12. Claim 124 specifying that the polyclonal library of vectors encodes entire full-length antibodies is supported at page 11, lines 1 through 2.

Claims 126 through 130 are supported throughout the specification and the examples. For example, the specification teaches at pages 17, line 25, page 19, line 10, page 26, line 20 and page 27, line 15, that the library can be a library of viral vectors. Examples 3 and 13 exemplify libraries where the viral vectors are phages and phagemids, which are subclasses of viral vectors. Figure 7 shows how such expression vectors can be generated. Preparation of such expression vectors is specifically described at page 26, lines 19 through 25, which states:

> Useful expression vectors include phages such as display phages, cosmids, viral vectors, phagemids or combinations thereof, and the vectors transformed into host organisms and the different populations of organisms expanded. [Page 26, lines 19 through 21]

The recitation that the DNA fragments encode at least 10 different variable regions is explicitly supported at page 30, lines 12 through 13.

Thus, claim 126 is fully supported.

The additional recitation in claim 127 is supported by Example 10 which teaches affinity selection of a phage display library using OC2 tumor cells. The additional recitation in claim 128 is supported by the specification at Page 30, line 17. The specific support for the recitation in claim 129 is supported by the specification of Example 13. The additional support for claims 130 and 131 is found in the paragraph bridging pages 20 and 21 and at page 24, lines 9 through 12.

As such, these amendments do not constitute new matter and their entry is respectfully requested.

In the Office Action dated June 3, 2003, the Examiner rejected claims 123 and 119 pursuant to 35 U.S.C. §112, first paragraph, and objected to the specification under §132.

Applicants respectfully submit that the rejections should be withdrawn. The specification at page 24 talks about putting the library of variable regions into other expression vectors which encode constant regions of proteins. Page 26 goes on to point out that the invention can be used not only with antibodies but with receptor proteins which have variable regions. Page 26 specifies that such receptor proteins are any proteins which show variability, and exemplifies a number of receptor proteins which have variable and constant regions including T cell receptor, B cell receptors, macrophage receptors and parts and combinations thereof (see page 26, lines 4 through 9). The specification goes on to point out that these receptor protein variable regions can be transferred into a library of constant regions see page 26 at lines 23 through 28. Specifically, at page 26, lines 23 through 25, the specification states:

> The sub-population may be subcloned into expression vectors, if necessary, which contain receptor constant region genes in-frame ...

Thus, applicants respectfully submit that the amendments to claims 119 and 123 do not constitute new matter because there is explicit support for the use of receptor protein. Further, the applicants submit that the amendment to the claims makes this even clearer.

Claims 123 and 119 were objected to pursuant to 37 CFR 1.75(c).

Applicants submit that this rejection has been obviated by the amendment to the claims which makes explicit that which applicants believe was implicit in the claims namely that they were talking about nucleic acid segments encoding such constant regions and variable regions.

Claims 111 through 112, 114-121 and 123 were rejected under 35 U.S.C. §112, second paragraph.

Specifically, the Examiner objected to the use of the term "in-mass" transfer claiming that the term is "still indefinite because there is no way for one of skill in the art to determine whether all nucleotide sequences so linked are indeed transfer [sic] all at once or 'in-mass' to the second vector."

Applicants respectfully submit that this rejection should be withdrawn for the following reasons. The term "in-mass" does not require that all nucleotide sequences so linked are transferred all at once. Rather, as the example and the specification teaches, the term merely requires that the transfer is done without significant loss of library diversity, not that every sequence is transferred. Or that every sequence is transferred at exactly the same moment. See particularly the discussion at pages 29 through 30 which specifies that "the inserted sequences are obtained from the first vectors and reinserted into second vectors without significant loss of library diversity." (Page 30, lines 6 through 8. See also page 30, lines 16 through 20 which teach that the diversity of the library obtained by such a transfer is reduced by less than 10%. See also, the discussion at pages 19 through 21.) Thus, applicants respectfully submit that the term is not indefinite but rather specifies that this is a library that was obtained not by individual transfer of each member of the library but rather a transfer involving multiple members of the library in a single reaction. However, this does not require that all members are transferred or that all are transferred at exactly the same instant but rather are transferred in the general procedure. A simplified example of such a transfer is shown as Figure 1 at the end of the Amendment. Thus, applicants respectfully submit that this rejection of the claims should be withdrawn.

Claims 119 and 123 were also rejected pursuant to 35 U.S.C. §112, second paragraph.

Applicants respectfully submit that this rejection should be withdrawn for the following reasons. Applicants specify receptor proteins that have constant regions teaching explicitly that such proteins are those which include variable regions including T cell receptors such as TcR, B cell receptors such immunoglobulins, natural killer cell, macrophage receptors, etc. See page 26. Thus applicants respectfully submit that the term is clear to the person of skill in the art

particularly when read in light of the teachings of the specification. As such, this rejection should be withdrawn.

Claims 111 through 112, 114 through 121 and 123 were rejected pursuant to 35 U.S.C. §112, first paragraph.

Applicants respectfully submit that the use of fragments is enabled. The application explicitly teaches fragments such as Fab fragments can clearly be used following the teaching. However, to expedite prosecution, the amendment to the claim has obviated this rejection.

Thus, applicants submit that all claims satisfy 35 U.S.C. §112, first and second paragraph.

In view of the foregoing, applicants submit that all claims are in condition for allowance. Early favorable action is requested.

Respectfully submitted,

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